Inequality as Entitlements over Labour

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Abstract

The modern study of economic inequality is based on the distribution of entitlements over goods and services. But social commentators at least since Rousseau have been concerned about a different aspect of economic inequality: that it also implies that one person is entitled to command the labour of another person for their own consumption purposes. I call this *inequality as entitlements over labour*. I propose a measure called the *service ratio*, which calculates the extent to which the rich can afford to buy the labour of others for the purpose of their personal consumption. Unlike standard inequality measures the service ratio is not welfarist, but instead has its normative basis in relations of hierarchy and domination between people. I estimate service ratios in two rich and two middle-income countries and argue that inequality as entitlements over labour is both socially and politically salient, and captures a side of inequality neglected by standard measures.

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1. Introduction

The modern literature on economic inequality is based on the study of differing entitlements over goods and services.[1] David Ricardo (1821) famously stated that "the principal problem in Political Economy" was to explain the division of national product between land owners, capitalists and workers.[2] Since the mid-twentieth century economists of inequality have turned towards the distribution of income or expenditure between individuals or households, rather than factors of production. Yet in all cases the unit of measurement is money, whether to measure product, income or expenditure, and inequality between two people means differing entitlements over a representative basket of goods and services. While interest in economic inequality has expanded dramatically in recent years, this focus has remained unquestioned. This means that economists have neglected an aspect of economic inequality discussed by social commentators at least since Jean Jacques Rousseau: that it also implies that one person may have the entitlement to command another person.

Rousseau (1762) wrote that, "by equality, we should understand, not that the degrees of power and riches are to be absolutely identical for everybody; but that... in respect of riches, no citizen shall ever be wealthy enough to buy another, and none poor enough to be forced to sell himself."[3] While it may be economically necessary for a manager to give instructions to subordinates for the purpose of production, Rousseau points to a more personal perspective: that economic inequality means that the rich are able to command the labour of other people for their own consumption purposes. He describes this relationship as *domination* and *servitude*.

Building on Rousseau's insight this paper develops an interpretation of economic inequality as *entitlements over labour*. It refers to the fact that inequality can mean that the rich have the economic entitlement to command other people's labour for their personal consumption. I propose a measure of this inequality called the *service ratio* S^G defined by taking the disposable incomes of a top income group G – such as the top 1% P100 or top decile D10 – and asking how many typical workers (where "typical" is to be defined) each of the rich could afford to employ in their personal service. If the average disposable income of individuals in the top 1% is sufficient to employ 15 typical workers, then the *service ratio* of the top 1% is 15. Where the income share of the top 1% or top 10% measures their relative command over resources, the service ratio measures their command over others. Since the rich do not spend all their income on employing people to serve them, an alternative way to view the service ratio is as a measure of the affordability to the rich of employing someone full time, as a fraction of their income: in this case an average person in the top 1% would

[1] I use "entitlements" in the sense of Sen (1983: 45), who defines the entitlement to the example of food as "the ability of people to command food through the legal means available in the society".
[2] Library of Economics and Liberty, http://www.econlib.org/library/Ricardo/ricP1.html.
[3] In the same sentence Rousseau describes equality of "power", in contrast to equality of "riches", as meaning that "power shall never be great enough for violence, and shall always be exercised by virtue of rank and law".

need to spend only 1/15th of her income in order to have another person working full time catering to her desires and needs.

The sociologist Thorsten Veblen (1899) argued that the employment of servants was an important element of conspicuous consumption, signalling the household's elevated social class. More generally, entitlements over labour can be seen as a variety of "status inequality". Max Weber defined status as "an effective claim to social esteem in terms of negative or positive privileges" (Weber, 1922 [reprinted, 1978, p. 3051, cited in Weiss and Fershtman 1998, p. 804) and argued that it interacted with market status, or wealth. This is supported by the modern economic literature on social status, which finds that those with high social status are likely to be treated favourably by others both in terms of market goods and in terms of social treatment (Weiss and Fershtman 1998).

As a measure of entitlements to labour, the service ratio is a measure of real income as well as a measure of inequality. In making cross-country comparisons it can complement existing measures based on market exchange rates (FX) or purchasing power parity exchange rates (PPPs). It is well known that FX comparisons understate the real incomes of poor countries relative to rich countries because of two factors: first, market exchange rates better reflect the relative prices of tradables than non-tradables; second, the relative price of tradables to non-tradables is higher in poorer countries (the Balassa-Samuelson effect). Thus FX comparisons give a lower bound on the real incomes of poor countries relative to rich countries because tradables are relatively expensive in poor countries. In contrast, service is the paradigmatic non-tradable. This suggests that income relative to the price of service gives the complementary upper bound on relative incomes in poorer countries. Since expenditure patterns differ across the income distribution – so any given estimate of PPPs will not accurately reflect expenditure costs across the whole distribution – there is value in having the two bounds.

The use of labour as numeraire was also famously proposed by Adam Smith (1976 [1776]: 47), who wrote, "Every man... must be rich or poor according to the quantity of that labour which he can command, or which he can afford to purchase." Yet Smith had a very different focus from Rousseau. Where Rousseau was concerned with command over labour as command over *people*, for Smith command over labour was a means to an end: labour was important as an input to produce "the necessaries, conveniences, and amusements of human life" that constitute "riches".[4] Labour as a numeraire has fallen out of favour, in part because of its substitutability by other inputs to production. But this substitutability does not affect Rousseau's perspective: as I discuss later, while labour as a productive input is often substitutable, there are important ways in which labour as command over a person is not.

[4] Smith argued that the division of labour means that nobody produces everything that they want to consume, so that being able to enjoy goods and services in general therefore requires command other people to produce and supply them.

This new normative approach to inequality complements the recent wave of inequality research that has used novel sources of data to uncover incomes at the top of the distribution.[5] This research has led to a dramatic expansion in our empirical knowledge of economic inequality. But so far there has been no corresponding resurgence in research on why inequality matters, and what kinds of inequality matter. As I discuss later, economists' normative basis for the study of inequality remains the welfarism of Atkinson (1970). This is not an adequate to respond to Piketty's (2014, p. 266) observation that, "The social reality and economic and political significance of inequality are very different at different levels of the distribution, and it is important to analyse these separately." Inequality as entitlements over labour provides a new perspective on the significance of the top incomes that have been the focus of the new inequality research.

Beyond its normative significance, I will provide evidence that inequality as entitlements over labour is salient in two further dimensions. First, it is socially salient. The ability to employ domestic service is fundamental to conceptions of the upper middle class lifestyle in many, perhaps most, countries. Moreover, it is plausible that rising female labour market participation in professional occupations has depended in part on the affordability of domestic service: when high-skill women enter the workforce their traditional tasks in the home are performed by domestic employees.

Second, the service ratio is politically salient. Typical wages represent income for the majority, but a consumption price for the rich and upper middle classes. This price may be a source of political instability because the non-rich have reasons to object to domination by the rich, while the rich and upper middle classes have a strong stake in keeping wages low because of the role of service in maintaining their lifestyles. I conjecture that this helps to explain recent political developments in Brazil, where upper income groups did not lose either income shares or purchasing power in general but, because of rising wages lower down the distribution, did lose command over the labour of their poorer compatriots.

Section 2 describes the normative basis of inequality as entitlements over labour and contrasts it with the standard normative basis of inequality measurement. Section 3 discusses the measurement of services ratios and presents estimates in four countries, the US, Sweden, Brazil and Mexico. Section 4 discusses the social and political salience of the service ratio. Section 5 concludes.

2. The normative basis of inequality measurement

Economic inequality and social welfare

Atkinson and Bourguignon (2000, p. 41) remark that, "income distribution may be considered the normative economic issue 'par excellence'." However, the study of economic

[5] See the World Inequality Database and references therein, wid.world.

inequality has been dominated by one approach that captures only a single element of what we might care about when we care about inequality. The standard view is due to Dalton (1920) and Atkinson (1970). Dalton argued that inequality measures are of interest primarily because of what they tell us about the amount and distribution of "economic welfare". Atkinson (1970) showed that for any Lorenz consistent measure of inequality, this normative interpretation is based on an underlying symmetric and concave social welfare function (SWF) specific to that measure.

On this basis, Atkinson showed that standard measures of inequality can be viewed as measures of distributional inefficiency in the production of social welfare: for any standard SWF, it would take less aggregate income to produce the same level of social welfare if that income were distributed equally, than unequally. Formally, Atkinson defines the *equally distributed equivalent income* y_{ede} as the average income required to achieve the existing level of social welfare, if income were distributed equally. Strict concavity of the social welfare function implies that $y_{ede} < \mu$, where μ is the actual mean income. Thus $I = 1 - y_{ede}/\mu$ is a measure of inefficiency in the production of social welfare. A value of 0.3, for instance, means that the current level of social welfare could be achieved with 30% less income, if that income were equally distributed.

While this normative approach is a powerful justification for the study of inequality, it remains very restrictive. For instance, based on this approach, a rise in income of the richest individual will unambiguously increase social welfare, even as it increases inequality. Mean income μ will rise proportionally by more than y_{ede} meaning the rise in inequality signals an increase in inefficiency, from the point of view of producing social welfare. But the underlying framework is Paretian in incomes: if income rises for one person and does not fall for anyone else, then social welfare must also rise.

Sen (1997, p. 385ff) pointed out two limits to this standard framework. First, an individual's economic welfare depends on numerous factors beyond their income, and these factors may imply different rates of transformation of income into well-being. For instance, an unfavourable environment, or an illness or disability, might reduce that rate of transformation. Thus indices of income inequality should be seen as *ceteris paribus* indicators of inequality in economic welfare, and normative evaluations should also pay attention to other factors that affect it. Second, Sen highlighted Adam Smith's argument that certain elementary functionings, such as appearing in public without shame, may depend on owning commodities whose importance is determined by the individual's community. This is the basis for relative measures of poverty, such as the EU's definition of poverty as income less than 60% of the national median. Still, neither argument addresses Rousseau's concern regarding the implications of economic inequality for relations between the rich and the non-rich, nor that a rise in incomes for the richest individuals may create some cost for society.

Inequality, hierarchy, power and domination

The recent surge in empirical inequality research led by Atkinson and Piketty (2007, 2010) focuses on the income shares of the rich, notably the top 1%. The income share of a top income group is not a Lorenz consistent measure, for the obvious reason that it is invariant with respect to transfers below the reference top income group. Thus they cannot be interpreted directly using Atkinson's 1970 framework. But little has been written about why they are normatively significant, despite their great popularity and apparent symbolic importance – as illustrated by the popular slogan "we are the 99%". It is also worth noting that the use of top income shares implicitly assumes a representative basket of goods and services as numeraire, applied to the rich and poor alike – despite the fact that this does not accurately reflect expenditure patterns.[6]

In his more recent work Atkinson (2007: 21-22) suggested that studying the rich was normatively important because "income is important as a source of power". But he did not argue that top income shares were the right measure of this power. Instead, he suggested that one way to measure this power is to interpret income as "command over people", which he proposed to measure using the number of people with gross income in excess of ten times the average earnings of a full-time worker.[7] This suggests a promising start, but these remarks have not been followed up.

Inequality as entitlements to labour, measured using the service ratio, provides a normative basis for studying the incomes of the rich and comparing them with wages lower down the distribution. It measures a variety of economic inequality that is itself a bad: social hierarchy and what Rousseau referred to as *domination,* or the ability of one person to command another person according to their personal desires. Rousseau argued that the power of one person to "exact obedience" from another implied "bonds of servitude" leading to "misery". Anderson (1999, p. 313), following Rousseau, argues that "egalitarians seek a social order in which persons stand in relations of equality. They seek to live together in a democratic community, as opposed to a hierarchical one… that no one need bow and scrape before others or represent themselves as inferior". O'Neill (2008, p. 127) notes that "the existence of social relationships characterized by stark hierarchies of status, and marked by relations of domination, deference, and servility, preclude the existence of… healthy fraternal social relations." Moreover, as an empirical claim about historical salience, Anderson (1999, p. 312)

[6] Deaton (1998: 43) estimated that in the US "the household for which the CPI weights are correct lies at the 75th percentile of the expenditure distribution". He also cites Deaton and Muellbauer's (1980, Table 7.1) finding that in "Britain in 1975–76, when the inflation rate was around 15 percent, the rate for the poor was two points higher than that for the rich." Moretti (2015: 66) considers prices facing college graduates and high school graduates in the US and finds that "in 1980, the difference in the average cost of housing between college and high school graduates is only 4 percent. This difference grows to 14 percent in 2000, or more than three times the 1980 difference."

[7] Atkinson (2006) applied this approach to wealth, defining the "rich" as those with net wealth greater than 30 times average income. He justifies this figure on the basis that with a real return of 3⅓ this level of wealth would yield average income.

notes that egalitarian political movements have historically opposed social orders based on "a hierarchy of human beings", where "inequality referred not so much to distributions of goods as to relations between superior and inferior persons." Rather than considering each person's economic entitlements in isolation, as in the social welfare approach, equality is instead understood as a matter of the relations among people.

The service ratio is a measure of economically-driven social hierarchy, and the ability of the rich to dominate, because it measures the affordability to the rich of commanding other people for personal ends.[8] If it would cost the average person in the top 1% only one twentieth of her disposable income to employ someone on median wage, then she is more able to dominate the median worker than if it would cost over a quarter of her disposable income. We would correspondingly expect a more hierarchical relationship, and greater servility from those lower down the distribution. Below we will see that these are the approximate values for the US and Sweden, respectively.

Research on the psychology of marketing supports the view that the service ratio is a measure of social hierarchy. Rao and Monroe (1989) found that perceived price led consumers to think more highly of a product. More recently, and incorporating the study of cognitive processes, Plassman et al. (2008, p. 1050) found that when consumers believe that a given wine was more expensive, they reported higher subjective "flavour pleasantness", and that functional MRIs simultaneously showed increased "blood-oxygen-level-dependent activity in medial orbitofrontal cortex, an area that is widely thought to encode for experienced pleasantness during experiential tasks". The service ratio is the price of a typical workers' labour to the rich, suggesting that a high service ratio will lead the rich to place lower value on their low-paid compatriots and foster the notion that there are "superior and inferior persons" (Anderson 1999, p. 312).

This implies an important difference from the standard approach to economic inequality: an increase in one person's income may increase or reduce social welfare depending on where they are in the distribution, and in particular whether they are likely to be dominating others or dominated by others. Thus a rise in incomes of the richest individuals is not taken to increase social welfare, but instead indicates an increase in a social bad: the rich have more power to dominate others. It follows that the service ratio is not Paretian in incomes of the rich.

One person's entitlement to the labour of another is at its starkest in the master-servant relationship. Rollins's (1985) study of domestic service in the US describes the mistress-servant relationship as "an extreme and 'pure' example of a relationship of domination in close quarters" (pp. 8-9) and reports that in her interviews with domestic servants, "all domestics concurred that employers appreciated some forms of deference and outward signs

[8] While in a market economy an employee can quit her job, doing so will typically be costly (Jacobson, Lalonde and Sullivan 1993). Moreover, for the majority of people the alternative to their current job is another job, where they may be equally dominated.

of subservience" (p. 147). Yet the personal employment of one person by another is neither necessary nor sufficient to create inegalitarian social hierarchy and domination. It is quite consistent with social equality that I clean your house and you look after my children. The problem arises when reciprocity breaks down because person A can easily afford the services of person B, and not vice versa – which is precisely when inequality as entitlements over labour, as measured by the service ratio, is high. Moreover, if person B is directly employed by a service company – such as a nursery, domestic cleaning company, or restaurant – then the relative cheapness or affordability of the service to its beneficiary again signals social hierarchy between the provider and the recipient. The higher the service ratio, the higher the disparities among individuals in their ability to receive service from one another, compromising Miller's notion that "each member of the community enjoys an equal standing".

A final comment on the determinants of inequality. We saw above that inequality of economic welfare depends on more than inequality of income, but also on environmental and individual factors that mediate the transformation of income into well-being (Sen 1997). Similarly, inequality understood as social hierarchy, domination and servitude depend on factors beyond the service ratio. At the level of society it will depend on institutions and policies that govern labour rights. Here it is a plausible hypothesis that the institutional and policy-based determinants of domination are positively correlated with the service ratio. For instance, the US is one of the most economically unequal rich countries and also has among the weakest sets of labour rights.[9] Domination will also depend on individual characteristics, including race, gender and immigration status, given that service occupations are disproportionately performed by disadvantaged groups (Rollins 1985, Sassen 2002). Thus the service ratio, like the Gini, Theil, Atkinson and other indices, is a *ceteris paribus* measure of its normative base.

3: Measuring entitlements over labour

Measurement

I measure entitlements over labour using the service ratio S, where the service ratio of the top p percent is the number of 'typical' workers that this upper income group could afford to employ. The numerator should therefore be the mean disposable income of the top p percent. How to define the denominator, the 'typical wage', is less obvious. Milanovic (2010) compares the wealth levels of some of the richest individuals in history using per capita GDP as numeraire, interpreting it as the cost of employing a contemporary worker. On this

[9] For instance, Bertram et al. (2012) note that "On pain of being fired, workers in most parts of the United States can be commanded to pee or forbidden to pee… employees can be fired for good reasons, bad reasons, or no reason at all… They have few rights on the job… no free speech or assembly, no due process, no right to a fair hearing before a panel of their peers". This is exceptional among developed countries, most of which have significantly stronger protections for workers, and also have lower levels of inequality according to standard measures.

measure he estimates that the richest person in history is Mexico's Carlos Slim, able to command the labour of 440,000 of his compatriots. Milanovic uses per capita GDP because of the availability of historical estimates. For more recent comparisons, however, per capita GDP is less useful as an approximation to wages: Bleynat, Challú and Segal (2017) find that in Mexico the ratio of per worker GDP to near-median wages averaged 0.6 in the nineteenth century, 1.2 over the 1940s to the 1970s, and 3.1 over 2000-2015.

Atkinson (2007) suggested 'average wages', which would include high wages. This would be preferable to per capita GDP, but it does not capture the social salience of the service ratio as it includes the wages of highly skilled professionals. The service ratio is intended to measure the ability to command people as such, not human capital as a productive input. For this reason I use the following two measures. First, the median wage, which is an obvious interpretation of the 'typical wage'.[10] Second, I use the average wage of the bottom 40%, referred to as the low-wage service ratio, or D1-D4 for deciles one to four.

There are two justifications for using the bottom 40%. First, service occupations are usually low wage occupations (Autor and Dorn 2013), so the cost of low-skill labour is particularly relevant to the arguments made above. Second, the bottom 40% is becoming a standard interpretation of the low-paid or relatively poor. The United Nations' Sustainable Development Goal 10, "Reduced inequalities", requires the incomes of the bottom 40% to grow faster than average incomes; similarly, the World Bank (2016) focuses on the bottom 40% in its definition of "shared prosperity". It is also consistent with the motivations behind the Palma index (Cobham and Sumner 2013), which is defined as the ratio of the average incomes of the top 10% to the bottom 40%. In this case the difference between the service ratio of the top 10% and the Palma ratio is that the Palma uses the same income concept for the top and bottom groups, while the service ratio uses disposable incomes for the top income group and wage costs for the bottom group.

For rich countries with predominantly formal economies, employers' contributions to social security and payroll taxes should be added to the cost of 'typical wages'.[11] For the middle-income countries Mexico and Brazil, I assume these are zero because of the high degree of informality in the labour market.[12] It should be noted, however, that domestic service has a disproportionate tendency to informality even in rich countries, and this can make a big difference to affordability – e.g. in Sweden a formally-employed cleaner costs nearly four times as much as one paid off-the-books.[13]

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[10] The Stiglitz commission also affirms that the median of a distribution is better than the mean as a measure of "the 'typical' individual or household" (Stiglitz et al, 2009, pp. 13-14).

[11] Employers' contributions reported by the consultancy firm KPMG, downloaded 26 October 2017 from https://home.kpmg.com/xx/en/home/services/tax/tax-tools-and-resources/tax-rates-online/social-security-employer-tax-rates-table.html.

[12] The ILO estimates the rate of informality in these two countries respectively at 53.7 percent and 42.2 percent of the workforce, and moreover observe that service occupations are disproportionately likely to be employed informally (ILO 2012).

[13] Rappe and Strannegård (2004, pp. 12-13 and pp. 63-65), reported in Bowman and Cole (2009, p. 167).

As with all inequality measures, different definitions of the underlying income concepts are possible. Standard inequality measures are applied to a variety of income concepts including consumption expenditure, pre-tax income, post-tax income and disposable income, any of which may be calculated as per household, per capita, or per equivalized adult. They are also applied to a variety of population units, including households, individuals, or adults. In many studies the strictly-correct distribution is not available and another is used as an approximation – notably, as in World Bank estimates of consumption poverty, which in many cases use income surveys (e.g. Ferreira et al., 2016). Similarly, the service ratio could be applied to different income concepts at the top of the distribution and different definitions of 'typical wages', depending on judgement and data availability. For instance, in the case of limited data one could approximate the service ratio of the top 10% with the Palma ratio, which uses the same income concept for the top 10% and the bottom 40%.

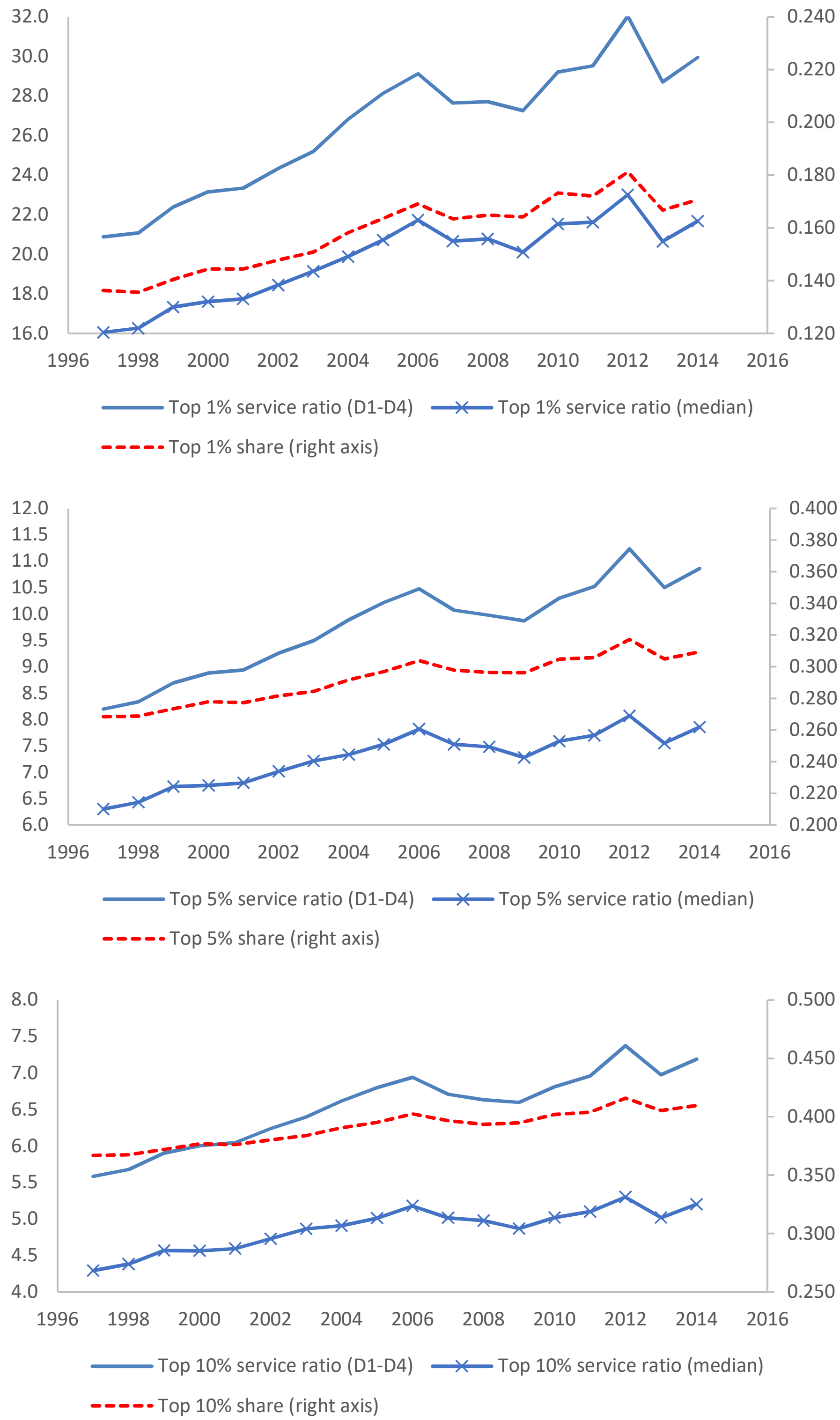
Estimates of entitlements over labour

I estimate service ratios for four countries: high-income and high-inequality USA, high-income and low-inequality Sweden, and middle-income and high-inequality Brazil and Mexico. I begin with the US. As is now widely known, income shares of top income groups in the US have grown substantially in recent years (Piketty et al., 2017). Figure 1 and table 1 indicate that their service ratios grew faster still. While the income share of the top 1% grew 25.3% over the period, the low-wage service ratio and median-wage service ratio grew by 43.5% and 35% respectively. This is because both low wages (D1-D4) and the median wage, the denominators in the service ratios, grew more slowly than average incomes, which is the denominator in the income share. In nominal terms low wages grew 46.3%, the median 55.5%, and mean income 71.6%. The fact that low wages grew more slowly than median wages explains why the low-wage service ratio grew faster than the median-wage service ratio. Since CPI inflation was 47.5% over the period, this means that low wages did not rise at all in real terms.

The dramatic rise in top income shares in the US in recent decades has been widely discussed and presented as salient to both national wellbeing and national politics.[14] These findings demonstrate that the ability of the rich to command poorer people for their own enjoyment has grown more even rapidly than these top incomes shares: while the income share of the top 1% in the US rose from 14% to 17% from 1997 to 2014, the low-wage service ratio grew from 21 to 30. That is, by 2014 the economy awarded adults in the top 1% the entitlement to command 30 low-skilled people. Put another way, to someone in the top 1% it cost only one thirtieth of their income, or 3.3%, to employ someone full time to cater to their personal needs and desires.

[14] E.g. Stiglitz (2011).

Figure 1: Service ratios and income shares in the USA, 1997-2014



Source: Author's calculations using World Wealth and Income Database (wid.world) and US Occupational Employment Statistics (www.bls.gov/oes).
Note: Low wage service ratio (D1-D4) uses average wage costs of the bottom 40% as the denominator, while the median wage service ratio uses the median wage.

Our second rich country, Sweden, is one of the most equal countries in the world, with the lowest Gini coefficient and the second-lowest 90/50 ratio in the Luxembourg Income Study.[15] We have data to estimate service ratios over 2005 to 2013, and during this period inequality as measured by top income shares changed very little (figure 2 and table 2). Service ratios rose slightly: while the income share of the top 1% fell by 1.6%, the low-wage and median service ratios of the top 1% rose by 5.7% and 5% respectively. Income shares and service ratios of the top 5% and top 10% rose by more. The contrast with the US is dramatic: where the low-wage service ratio for the top 1% in the US is 30.0 in 2014, in Sweden it was only 4.6, meaning that the average person in the top 1% would have to spend 22% of her disposable income to employ someone full time in contrast to the 3.3% in the US. This means that the average person in the top 1% in the US can afford more than six times as many low-skill personal employees as someone in Sweden.

Table 1: Increase in US inequality from 1997 to 2014, percent

	Top 1% share	Top 1% service ratio (D1-D4)	Top 1% service ratio (median)	Top 5% share	Top 5% service ratio (D1-D4)	Top 5% service ratio (median)	Top 10% share	Top 10% service ratio (D1-D4)	Top 10% service ratio (median)
1997	0.136	20.9	16.1	0.268	8.2	6.3	0.367	5.6	4.3
2014	0.171	30.0	21.7	0.309	10.9	7.9	0.410	7.2	5.2
Growth	25.3%	43.5%	35.0%	15.3%	32.5%	24.7%	11.7%	28.8%	21.2%

Source: Figure 1.

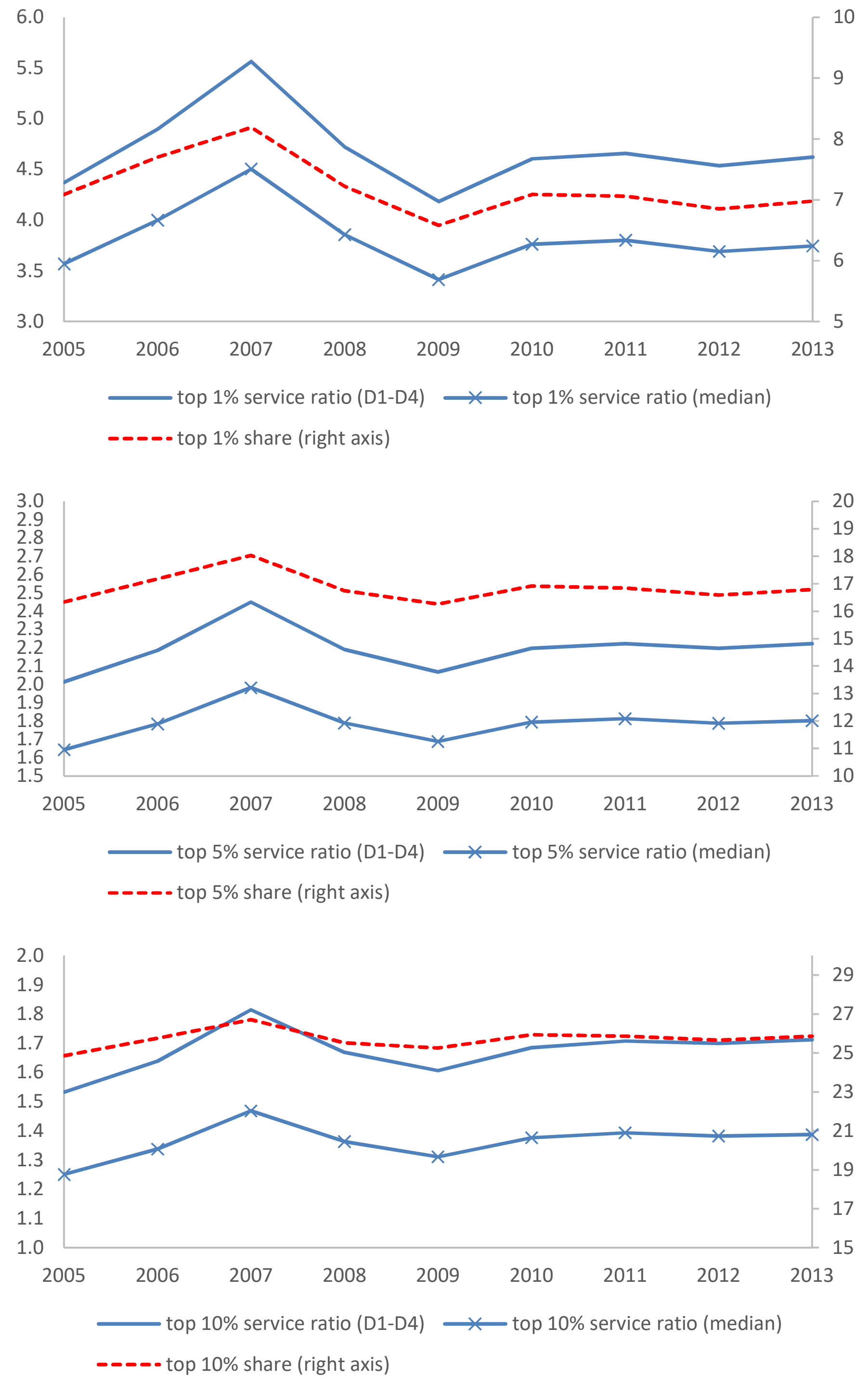
Table 2: Change in inequality in Sweden, 2005-2013

	Top 1% share	Top 1% service ratio (D1-D4)	Top 1% service ratio (median)	Top 5% share	Top 5% service ratio (D1-D4)	Top 5% service ratio (median)	Top 10% share	Top 10% service ratio (D1-D4)	Top 10% service ratio (median)
2005	7.1	4.4	3.6	16.3	2.0	1.6	24.9	1.5	1.3
2013	7.0	4.6	3.7	16.8	2.2	1.8	25.9	1.7	1.4
Growth	-1.6%	5.7%	5.0%	2.8%	10.4%	9.6%	4.0%	11.7%	10.9%

Source: See figure 2.

[15] LIS “Key figures”, downloaded 8 November 2017 from http://www.lisdatacenter.org/data-access/key-figures/

Figure 2: Service ratios (D1-D4) and income shares in Sweden, 2005-2013

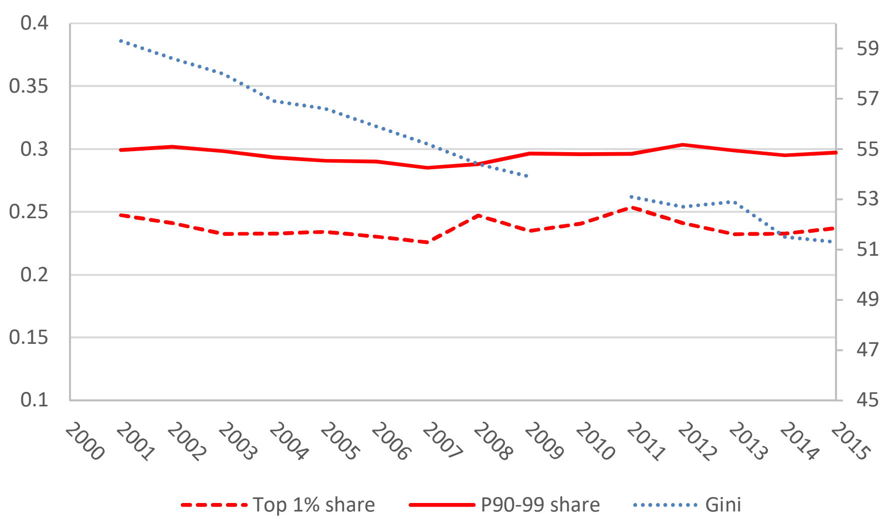


Sources: Author's calculations based on top disposable incomes updated by Olle Hammar from Roine and Waldenström (2010); wage data from Statistics Sweden [https://www.scb.se/en/finding-statistics/statistics-by-subject-area/labour-market/wages-salaries-and-labour-costs/salary-structures-whole-economy/]. Note: Low wage service ratio (D1-D4) uses average wage costs of the bottom 40% as the denominator, while the median wage service ratio uses the median wage.

Where Sweden is one of the most equal countries in the world, Brazil lies at the other extreme – although, as we will see, inequality on some measures has declined substantially since around 2000.

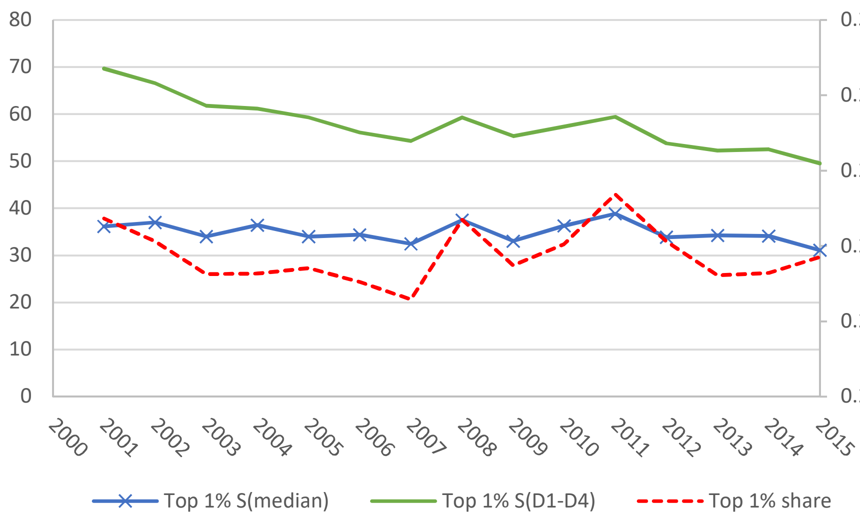
Figure 3 shows existing measures of inequality in Brazil. The Gini coefficient, estimated using household survey data, has declined substantially since 2001. In contrast, income shares for the top 1% and percentiles 90-99, estimated using tax data, had no trend, remaining at about 24% and 30% respectively. These contrasting findings are due to a combination of the differing data sources and the differing measures, where the decline in the Gini is partly due to declining inequality among the bottom 90% that does not affect the income share of the top decile.

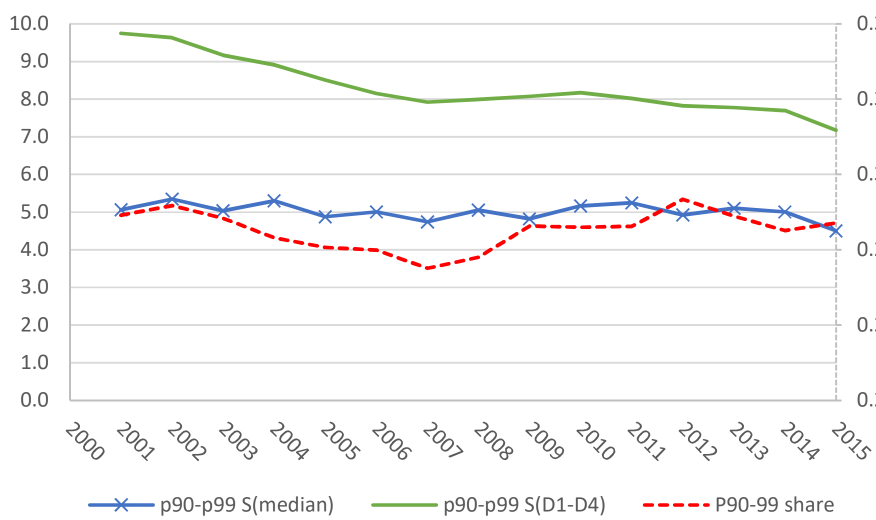
Figure 3: Gini coefficient and income shares of top 1% and p90-99, Brazil, 2015



Sources: Top income shares downloaded from wid.world on 27 November 2011, based on tax data. Gini coefficients from World Development Indicators, based on household surveys. See Appendix for details.

Figure 4: Service ratios and top income shares, Brazil, 2001-2015





Sources: Author's calculations based on top income data levels and shares downloaded from wid.world on 27 November 2011. Wage data calculated by Julian Messina and his team based on the household survey PNAD, extended using IBGE data. See Appendix for details.

Table 3: Service ratios and income shares in Brazil, 2001-2015

	Top 1% share	Top 1% S(D1-D4)	Top 1% S(median)	P90-99 share	p90-p99 S(D1-D4)	p90-p99 S(median)
2001	0.247	70	36	0.299	9.7	5.1
2015	0.237	50	31	0.297	7.2	4.5
Growth	-4%	-29%	-14%	-1%	-26%	-11%

Source: See figure 4

Service ratios tell a different story. Where the income share of the top 1% declined only 4% over 2001-2015, their low-wage and median-wage service rates fell by 29% and 14% respectively. For the group p90-p99 the share changed less by 1% but service ratios fell by 26% and 11%. (figure 3 and table 3). On the other hand, for the top 1% low-wage and median service ratios remained as high as 50 and 31 respectively, implying that they retained extremely high entitlements to labour. For this group it cost only 2% of disposable income to employ someone full time on low wages, or 3.3% for someone on median wage. In the next section I argue that declining service ratios in Brazil may have been implicated in the collapse in political support for President Dilma that made possible her impeachment in 2016.

Figure 5 compares top 1% service ratios for the above three countries and, in addition, for Mexico over 2009-2012. Brazil has the highest median-wage service ratio varying between 31 and 39, substantially higher than the next highest, Mexico, which varies between 24 and 28. In 2001 Brazil's figure is exactly double that of the US, but the gap shrinks over time as Brazil's declines and that of the US rises. For the low-wage service ratio, Brazil reaches a staggering 70 in 2001, declining rapidly to 50 by 2015, bringing it slightly below Mexico's value in the years available. This suggests that in the sense of the low-wage service ratio, today Mexico may be even more unequal than Brazil.

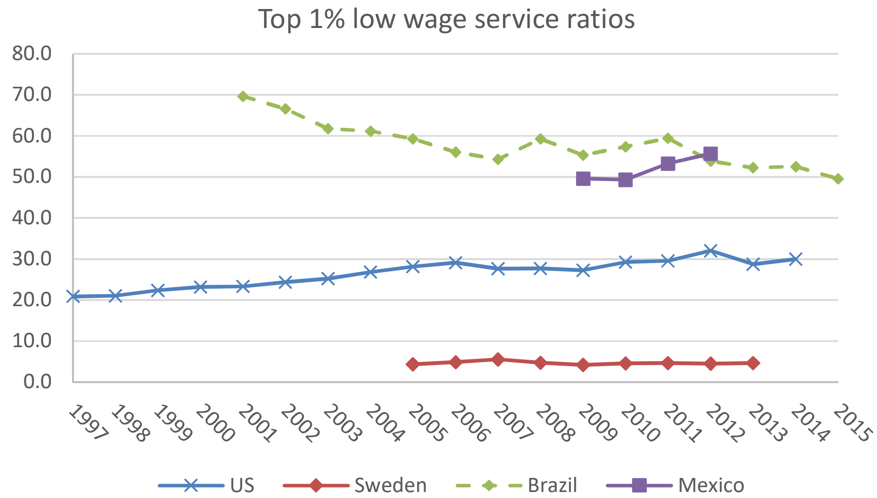
Table 4 gives average service ratios over 2009-2012, the period with data for all four countries. The differences between the three high-inequality countries and Sweden are striking: in their low-wage service ratios the US 6.6 is times more unequal than Sweden, while Brazil and Mexico are 11.6 and 12.6 times more unequal than Sweden. For the median-wage service ratio the differences are slightly smaller at 5.9, 9.7, 7.0.

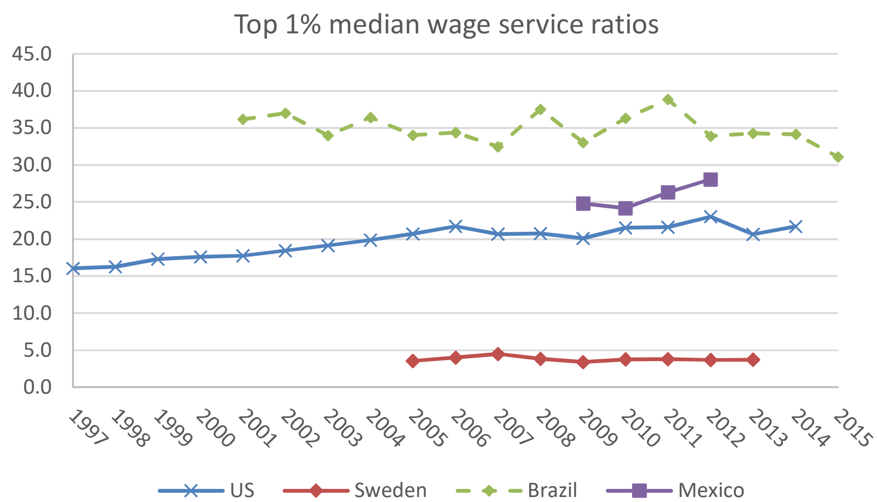
Table 4: Average top 1% service ratios 2009-2012

	Top 1% service ratio (D1-D4)	Top 1% service ratio (median)
Brazil	56.5	35.5
Mexico	51.9	25.8
US	29.5	21.6
Sweden	4.5	3.7

Source: See figures 1, 2 and 4.

Figure 5: Top 1% service ratios in four countries





Source: See figures 1, 2, 4; for Mexico top income data were calculated by Facundo Alvaredo and wage data are from the *Encuesta Nacional de Ocupacion y Empleo*.

4. Discussion: The social and political salience of entitlements over labour

We saw above that inequality as entitlements over labour has a different normative basis from the standard approach as measured by the Gini, Theil, or top income shares, defined on the basis of differing entitlements goods and services. Instead of being welfarist, it refers to the risk of domination of the non-rich by the rich. While domination is undesirable for those being dominated, it may of course be highly desirable to those who dominate. For this reason, inequality as entitlements over labour brings out two salient features of economic inequality that the standard approach neglects. First, it highlights the social role of inequality in the lifestyles of the rich and upper middle classes. Second, it is politically salient, representing a locus of conflict between those who can afford to employ service and those who, by economic necessity, provide it.

Service, the middle class, and gender roles

In his famous discussion of conspicuous consumption and conspicuous leisure, Veblen (1899, p. 59) remarked that for the leisured classes, domestic servants "are chiefly useful as a method of imputing pecuniary respectability to the master or to the household." A century later, Palmer (1989: 159) noted that "much of the feeling of greatness (of power) comes from being served". This was vividly described in Tom Wolfe's (1968) portrayal of the lifestyle of the very wealthy in New York City: "It's not even the exercise of power... It's a feeling... knowing that anywhere they go, people will move for them, give way, run errands, gather around... and *jump*..." [ellipses in original].

Yet domestic service is enjoyed not just by the very rich, but also by many self-described "middle class" working households that can afford it, and in many countries it is fundamental to understandings of the "middle class" lifestyle. Sun (2009, pp. 10-16) describes the maid as "indispensable to the smooth running of the household" for the "emerging urban middle class" in Beijing. O'Dougherty (2002, p. 209) notes that typical two- or three-bedroom upper-middle class homes in São Paolo, Brazil, include a "service (i.e. maid's) area", and her documentation of the lives of these households contain repeated references to domestic servants. In Mexico the indispensability of domestic workers is indicated by the fact that they are often referred to as *la felicidad de la casa*, or "the happiness of the household" (e.g. de la Torre, 2014; Mexia, 2013).

Internationally-mobile journalists confirm this conception. Writing about Delhi for the Wall Street Journal, Lahiri (2012) reported that "one of the widely acknowledged perks of living here – the one many Indians abroad think of most wistfully" is "the availability of cheap household help." In Forbes, reporting from São Paolo, Rapoza (2013) remarked: "Ask an expat [from a rich country] what they love most about living overseas and they will inevitably tell you this: the taxes and the maid service. That's right. Maids." Consistent with these remarks, Sassen (2002, p. 258) argued that domestic service is an essential and growing component of globalization, in which growing "global cities" become centres for high-paid and busy professionals who "want it all, including dogs and children, whether or not they have the time to care for them," and who employ others to care for them.

In rich countries the idea of servants in the home seems to recall an earlier epoch before the widespread reduction in inequality of the mid-twentieth century. But, at least in the US, the importance of service to the well-to-do never entirely went away. Palmer (1989: p. x), in her study of domestic service in the USA in the 20th century, remarked that "the independent women of my family had felt they must have domestic labor in order to achieve genteel propriety".[16] The data confirm this to be a rising trend in many rich countries. Recent studies

[16] Palmer adds that "by 1920, 46 percent of black women workers were domestics and launderers, compared to 22 percent of employed foreign-born white women and eight percent of native-born white women, including Hispanics" (p. xiii). Race profiles of servants will be important elements of the social impact of service inequality in many countries, though I do not pursue this angle in this paper.

of employment polarization have found a rise in employment in "service occupations" in rich countries, i.e. professions that "involve assisting or caring for others" (Autor and Dorn 2013, p. 1555).[17] As we saw above, in many cases this work is outsourced so that the beneficiary of the service is not the direct employer.

This rise in service appears to have been driven by two factors. First, technical change in recent decades has tended to substitute for routine tasks that, in the past, were performed by low-skilled labour, pushing up the supply of workers for low-skill service occupations that cannot be mechanized (Autor and Dorn 2013). Second, in the US case, the demand for "home production substitutes" by the highly-paid has increased as inequality has increased, because rising inequality means the opportunity cost of their time rises relative to the cost of these services (Milkman et al 1998; Manning 2004; Mazzolari and Ragusa 2013).[18] In this respect, rich countries are returning to a pattern familiar in poorer countries. This relationship between the opportunity cost of the time of the rich with the cost of labour for home production substitutes is precisely what the service ratio measures.

Moreover, the affordability of service is essential to changing gender roles. Female labour market participation has risen substantially in most countries, with the OECD average rising from 42.5% in 1978 to 51.7% in 2016.[19] This rising participation has relied on the employment of domestic service to perform traditionally-female housework. 30 years ago Palmer (1989: x) already reported that, as a "middle class" professional in Washington, D.C., "Nearly all of my women friends in Washington hire another woman to do some of 'our' work. I have a one-day-a-week housecleaner, and several friends with young children have full-time housekeepers. Almost no one I know cleans her own house, and many do not do their own laundry or prepare most of their childrens' meals." More recently, a personal profile on the US economist couple Betsey Stevenson and Justin Wolfers, both full-time professionals working on the economics of the family and life satisfaction, reported that they employ a nanny for 55 hours a week to look after their only child, in addition to "someone who drives them back and forth to Princeton and who cooks, does the laundry and snakes the drains when they are clogged" (Rich 2012).

Flanagan (2004) goes so far as to claim that "many of the gains of professional-class working women have been leveraged on the backs of poor women" – although this negative interpretation is contested (e.g. Bowman and Cole, 2009). Without significant changes in gender norms, a woman's decision on whether to enter the workforce will depend heavily on the opportunity cost of her time relative to the price of the domestic labour required to perform traditionally-female domestic work – i.e., her service ratio. Thus rising female labour market participation will raise demand for service. Looked at from the other direction, factors that increase the supply and lower the cost of service – such as the availability of low-paid

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[17] Sassen (2002, p. 262) informally noted "the reemergence of a 'serving class' in contemporary high-income households and neighborhoods".

[18] However, Goos, Manning and Salomons (2009) find this does not apply across European countries.

[19] World Development Indicators, labor force participation rate, female (% of female population ages 15+) (national estimate).

immigrant labour highlighted by Sassen (2002) – would be expected to increase female labour market participation in professional occupations.

Social conflict and the political economy of service

The "social conflict view" of political economy (Acemoglu, Johnson and Robinson, 2005) explains political outcomes on the basis of conflicts of interest between groups. Traditional Marxist analyses focus on the conflict between owners of capital and their employees over the level of wages, where wages are income for workers, and an input cost for capitalists. Acemoglu and Robinson (2009, chapter 8) represent the conflict of interest between groups as a conflict over redistributive taxation, rather than wages. In their three-class model of the rich, the middle class and the poor, the locus of conflict is modelled as differing rates of fiscal redistribution.

Inequality as entitlements over labour illuminates a locus of conflict that has not been studied in the political economy literature: upper-income households who rely on the consumption of domestic service also have a direct stake in keeping low-skill wages low, in order to maintain the affordability of service. As we saw above, it is a consumption cost with particular salience: it is symbolically important for the self-perception of rich and middle-class households and, given pre-existing gender roles that place the burden of housework disproportionately on women, it facilitates high-skilled women entering the labour market.

Where traditional Marxist analyses focus on conflict between capitalists and workers, and Acemoglu and Robinson's three-class model assumes that the rich and middle class are in conflict over redistributive taxation, inequality as entitlements over labour represents a shared interest between the rich and the (upper) middle class, against the poorer majority: unskilled wages are a consumption price for both the rich and the upper middle classes who pay for service.

Moreover, inequality as entitlements over labour is likely to be particularly conflictive for the following reason. When the concern is inequality in the distribution of command over goods and services, economic growth relaxes the resource constraint and can allow all classes to increase their real incomes without the need for conflict over redistribution. But this possibility is much more limited for command over labour. As shown by Baumol (1967: 415-16), productivity improvements are necessarily limited in sectors where "labor is an end in itself". These would include care work such as nursing and childcare, as caring requires the attention of a *person*. The point applies more broadly to what Acemoglu and Autor (2011, p. 1077) describe as non-routine manual tasks, i.e. "activities that require situational adaptability, visual and language recognition, and in-person interactions," which also include domestic and personal services such as cleaning and chauffeuring. If the rich want service, they cannot achieve it through technological change: they need to keep their incomes high *relative to the wages of the non-rich*. In this sense, inequality *per se* benefits the rich.[20]

Recent political developments in Brazil illustrate this point. Dilma Rousseff became President in 2011 and won a second term that started in 2015, but was impeached in 2016 after allegations of corruption. A full explanation for this dramatic event is beyond the scope of this paper, but by 2016 Dilma had lost support of a large share of the upper middle class, who joined anti-government demonstrations around the country on 13 March (Flynn and Soto 2016, Saad-Filho 2016). Brazil had entered a bad recession and there is widespread agreement that "the upper-middle class felt squeezed economically" (Saad-Filho 2016; also see Braga 2016). But the squeeze was not simply a loss of purchasing power: media reports claimed that much upper-middle class anxiety was due specifically to the rising cost of domestic service. In 2013 a constitutional amendment was passed that increased the rights of domestic workers, while low wages were rising. For Bloomberg.com, Goodman (2013) reported that the constitutional amendment was "spreading concern among middle and upper-class families that the cost of employing a maid or nanny will spike". Rapoza (2013) remarked that "Brazilian maid service is becoming professionalized, and that has pulled the rug out from the middle class that has come to depend on them to keep their house in order." Moreover, the rise of service and other low-skill wages reduced the social distance between the poor and the rich, to the displeasure of the latter: Braga (2016) comments that "workers 'invaded' spaces previously reserved for the traditional middle classes, such as shopping malls and airports", suggesting that these factors together were an important cause of declining middle-class support for President Dilma (also see Saad-Filho 2016).

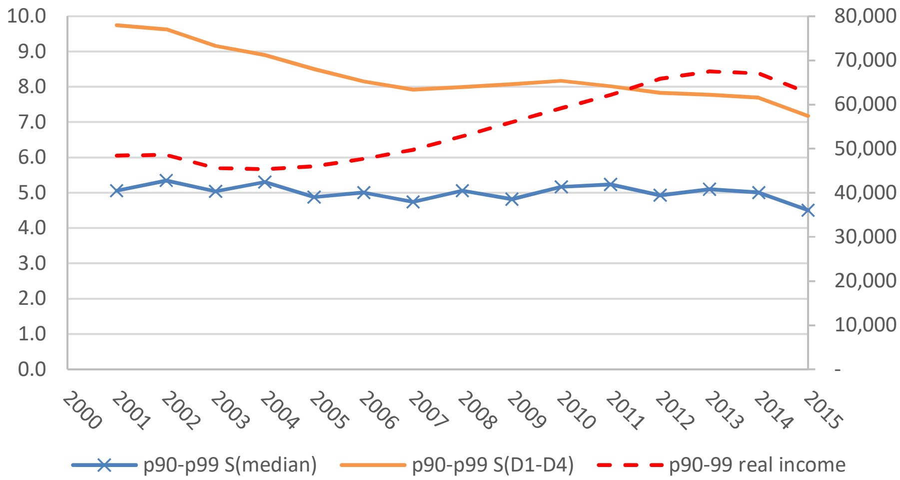
The data are consistent with these qualitative impressions that the affordability of service became a salient concern for the Brazilian upper-middle classes. If we look at the p90-99 group, which is a plausible interpretation of this "upper-middle class", the data show that their real incomes did not decline significantly under Dilma. Figure 6 and table 5 show that both real incomes and income share were virtually unchanged over 2011-2015. But wages in the bottom and middle of the distribution rose significantly, [21] leading to this group suffering declining entitlements to labour, as measured by service ratios: the low-wage service ratio of p90-99 fell 11% while the median wage service ratio fell 14%. If we consider the period under Working Party (PT) rule from 2003, started by President Lula da Silva and continued by Dilma, the p90-p99 group saw their real incomes rise by 37%, but their low-wage and median-wage service ratios fell by 22% and 11% respectively. The perceptions described

[20] Consistent with this, Bertram (2015) argues that a desire to command labour, or dominate the lower classes, may lead higher income groups to "favour policies that enhance the subordination of the least advantaged and make those people disposed to act according to the bidding of the wealthy".

[21] Both the real minimum wage and the average real wage of the bottom 40% rose 75-80% over 2001-2015; the real median wage rose 30%. The rising minimum wage did not reduce compliance: the proportion of workers being paid below the minimum was only 12% in 2014 and 2015, lower than any year since 2002. IBGE data downloaded 31/01/2018 from https://ww2.ibge.gov.br/english/estatistica/indicadores/trabalhoerendimento/pme_nova/defaulttab_hist.shtm See data appendix for data sources.

above suggest that for the upper middle class, declining service ratios are not easily compensated by incomes rising relative to CPI.

Figure 6: Income share, real income and service ratios of p90-99



Source: See figure 4.

Table 5: Top income shares, service ratios and real incomes, Brazil, 2001-2015

	P90-99 share	p90-99 real income (2010 R$)	p90-p99 S(D1-D4)	p90-p99 S(median)
2001	0.299	48,414	9.7	5.1
2011	0.296	62,134	8.0	5.2
2015	0.297	62,587	7.2	4.5
change 2001-2015	-1%	29%	-26%	-11%
change 2011-2015	0%	1%	-11%	-14%

Source: See figure 4.

5. Conclusion

Interest in economic inequality has enjoyed huge growth in recent years and a multitude of studies have increased enormously our knowledge of income distributions around the world. But there has been no corresponding rise in attention to why inequality matters, and what kinds of inequality matter. The traditional welfarist approach is a powerful justification for studying inequality, but it remains a very narrow normative base: social movements that have opposed inequality have not been mobilized only by the concern that inequality implies inefficiency in the production of social welfare. Moreover, the rich are concerned not simply with their real incomes measured relative to a standard consumption basket, but also with their ability to command those around them.

Inequality does not just mean that one person can buy more goods and services than another. It also means that one person may be rich enough to command another to do their bidding. As Adam Smith pointed out, the modern economy inevitably requires people to do things for each other in return for payment. But Rousseau was concerned that when inequality is high, this relationship stops being reciprocal, and can become one of domination and servitude: many people may spend their entire working life catering to the personal desires and needs of someone else much richer than them, undermining the idea that people are intrinsically of equal value even if they can consume different amounts.

Unlike the welfarism of standard inequality measures, the theory of inequality as entitlements to labour is normatively based on relations between people. I have argued that it captures socially and politically salient features of inequality left unaddressed by the standard approach. Domestic service plays an essential role in conceptions of the upper-middle class lifestyle, and in enabling rising professional female labour market participation. And political conflict may arise out of these interpersonal relations – the rich defending their entitlements to domestic services on which they depend, and the poor defending their personal autonomy against domination – and not just out of competition over goods and services. While there is widespread agreement that inequality matters, there is much less discussion of what types of inequality matter, why they matter, and how they should be measured. The theory of inequality as entitlements over labour is a step towards a deeper understanding of what we care about when we care about inequality.

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Appendix: Data

Brazil

Top income data are from wid.world, given as gross incomes. I estimate disposable incomes by applying personal income taxes and social security payments to 2015 gross incomes, and assuming the ratio of disposable to gross income stays constant over time. This ratio is 0.73 for the top 1% and 0.76 for percentiles 90-99. In terms of levels, this probably implies an under-estimate of net incomes (and hence of service ratios) as it assumes no tax exemptions, and no capital income, which is taxed at a lower rate.

Median wages and the average wage of the bottom 40% were calculated by Julian Messina and his team based on the household survey PNAD, up to 2013. For 2014-15 I extended the PNAD median wage using median wage growth rates from IBGE's monthly wage survey, and the bottom 40% using the minimum wage. The latter seems appropriate because the average wage of the bottom 40% and the minimum wage have a correlation coefficient of 0.95 over 2001-2013. ILO (2012, Table 1) reports that 42.2% of non-agricultural employment is informal, which will be disproportionately low-paid workers, and service workers in particular. For this reason I assume no social security contributions by employers.

Mexico

Top income data were calculated by Facundo Alvaredo. Wage data are from the *Encuesta Nacional de Ocupacion y Empleo*, from which I calculated median wages, and average wages of the bottom 40% of wage recipients. ILO (2012, Table 1) reports that 53.7% of non-agricultural employment is informal, so as with Brazil I assume no social security contributions by employers.

USA

Top income data are from the World Wealth and Income database (wid.org), where I use post-tax disposable income.[22] In the original data, total household income is split equally between adults in the household, denoted "adults-equal split" in wid.org. So to get the individual distribution I use the ratio of incomes measured using "equal split" to incomes measured using "individual" given in the Appendix Tables C9 and C10 of Piketty et al. (2017), which give "Post-tax income (matching national income)". This income concept is defined as disposable income plus the value of public expenditures on public goods and education, where these expenditures are allotted proportionally to disposable income. This implies that in a given year the ratio of income by "equal split" to income by individual will be the same for disposable income as it is for post-tax income. This ratio is between 1.05 and 1.07 over 1997 to 2014.

[22] Downloaded 19 June 2017.

For wages I use Occupational Employment Statistics from the US Bureau of Labor Statistics (www.bls.gov/oes), to which I add social security contributions totaling 7.65% for the employer (KPMG 2017).

Sweden

Top disposable incomes updated by Olle Hammar from Roine and Waldenström (2010); wage data from Statistics Sweden [https://www.scb.se/en/finding-statistics/statistics-by-subject-area/labour-market/wages-salaries-and-labour-costs/salary-structures-whole-economy/]. D1-D4 average is estimated from wage percentiles 10, 25, 50, 75 and 90 using log-normal parameterization. Cowell and Flachaire (2015, p. 373) report that log-normal distributions generally perform well for wage distributions, except for the right-hand tail. Since we are concerned with the bottom half of the distribution this seems an appropriate choice.